I/WE CLAIM:

1. A method for manufacturing ceramic hollow fibers from nanoscale powders, characterized in that
(a) a ceramic mass is manufactured, in which a nanoscale metal oxide, carbide, nitride or sulfide powder is transformed with an oxycarboxylic acid, compounded to a ceramic mass with at least one solvent and at least one polymeric binder,
(b) the ceramic mass is extruded or spun to hollow fiber blanks,
(c) the blanks are sintered according to conventional methods of sintering.

2. The method according to Claim 1, characterized in that the ceramic mass has a solids content of at least 20 vol%, preferably > 25 vol% and especially > 30 vol%.

3. The method according to Claim 1, characterized in that the nanoscale powder is aluminum oxide, zirconium oxide, yttrium stabilized zirconium oxide, titanium oxide, silicon carbide, tungsten carbide and/or silicon nitride.

4. The method according to Claim 1, characterized in that the oxycarboxylic acid is preferably trioxadecanoic acid or dioctaheptanoic acid.

5. The method according to Claim 1, characterized in that the solvent is water and/or ethyleneglycol, propyleneglycol, diethyleneglycolmonoethylether, diethyleneglycolmonobutylether, especially a mixture of ethyleneglycol and diethyleneglycolmonobutylether.

6. The method according to Claim 1, characterized in that as polymer binder, cellulose, methylcellulose, ethylcellulose, polyvinylalcohol, ambergum, a polyacrylate and/or a polymethacrylate is utilized.

7. The method according to Claim 1, characterized in that as polymeric binder at least an acrylate and/or methacrylate is utilized, which is polymerized after the shaping by using a radical starter.

8. The method according to Claim 1, characterized in that the external diameter of the ceramic hollow fibers is < 500 µm, preferably < 200 µm and especially < 100 µm.

9. The method according to Claim 1, characterized in that the extrusion mass is placed in a special container or in a pressure vessel of a conventional spinning device and conveyed through the spinning device between room temperature and 300 °C.

10. The method according to Claim 1, characterized in that the hollow fibers can be sintered to densities of > 97 % of the theoretical density.

11. The method according to Claim 1, characterized in that porous hollow fibers are manufactured whose pore size, in dependence on the sintering conditions (temperature, pressure, time, atmosphere) is between 0.5 nm and 1000 nm, preferably between 0.5 nm and 200 nm and especially between 0.9 nm and 100 nm.

12. The method according to Claim 11, characterized in that to produce porous hollow fibers active carbon is added to the ceramic mass, preferably in an amount from 5 to 20 wt% as a template.

13. Ceramic hollow fibers, characterized by an external diameter of < 500 µm, preferably < 200 µm, and especially < 100 µm, containing the reaction product from a nanoscale metal oxide, carbide, nitride or sulfide powder, with an oxycarboxylic acid and at least one polymeric binder.

14. Use of the ceramic mass according to Claim 1 for forming by means of ceramic silk screening and, if necessary in combination with a suitable masking technology, subsequent curing.

15. Use of the ceramic hollow fibers according to Claim 13 for the manufacture of a web that retains its shape when sintered.

16. Use of the ceramic hollow fibers according to Claim 13 for metal, polymer and ceramic matrix reinforcements, for artificial organs, for components in microsystems for optical waveguides, for ceramic membranes, for the solid electrolyte in fuel cells (SOFC), for tissue engineering and for the manufacture of extremely light weight ceramic parts for temperature stressed components like heat shields and brake systems.

17. Use of the ceramic hollow fibers according to Claim 13 for the manufacture of solid electrolytes in the high temperature fuel cell (SOFC).

18. Use of the structures formed by means of ceramic silk screening according to Claim 14 for insulation coatings, functional coatings, protective coatings for sensors, actuators and displays.